

ORTHOPTEROIDS OF SAND MOUNTAIN AND BLOW SAND MOUNTAINS, NEVADA¹

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ABSTRACT: Twenty-three species of orthopteroids were collected from Sand Mountain and Blow Sand Mountains, Nevada. One species, *Ammobaenetes lariversi* Strohecker, was the only sand obligate species obtained.

Sand Mountain and Blow Sand Mountains were visited 19 times in a 13 month period for the purpose of surveying selected groups of arthropods. Here we report on the orthopteroids collected during the study. Over 700 specimens were obtained. They represent 23 species in three orders and seven families. Only one, *Ammobaenetes lariversi* Strohecker, is a sand obligate species. No new species were obtained.

Study Areas

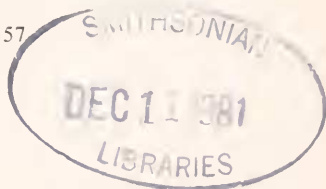
Sand Mountain dunes and Blow Sand Mountain dunes were sampled from June 1979 through July 1980. Sand Mountain is approximately 46Km ESE of Fallon, Churchill County, Nevada (39°20'N-118°20'W) and is about 1,250m in elevation. Blow Sand Mountains are approximately 52Km SE of Fallon, Nevada (39°10'N-118°35'W) and are about 1,400m in elevation. The dunes are separated by 25Km air distance. Sand Mountain is a star dune of approximately 3.2Km² while Blow Sand Mountains are complex star and linear dunes of approximately 9.2Km², however, both dunes result from the same eolian sand deposited during the Turupah and Fallon formations of about 4,000 years B.P. (Morrison and Frye 1965).

The floras of the two dunes were similar. The dominant vegetation was *Atriplex confertifolia* (Torr. & Frem.), *Tetradymia tetrameres* (Blake), *Chrysothamnus viscidiflorus* (Hookl), *Astragalus lentiginosus* Dougl., and *Psoralea lanceolata* Pursh. and at Sand Mountain only *Eriogonum kearneyi* Tidestr. and *Psorothamnus polyadenius* (Torr.). The common grass was *Oryzopsis hymenoides* (R. & S.).

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Methods and Materials

Several collecting techniques were used to obtain arthropod specimens. Permanent pitfall traps were 0.951 (11.5cm diameter) plastic cartons buried level with the sand surface and one-third to one-half filled with ethylene glycol (antifreeze). Traps were covered with a 13X13cm Masonite lid held 2cm above the surface. Six traps were placed 10 meters apart in a transect. Six transects were used at Sand Mountain and four at Blow Sand Mountains. Permanent pitfall traps were operative for 30 days between collecting periods. Temporary pitfall traps were 15cm diameter cereal bowls placed level with the sand surface. Twelve traps placed 10 meters apart represented a transect. Six transects were used at Sand Mountain and four at Blow Sand Mountains. Temporary pitfall traps were used for 12-18hr during a survey period. Trapping duration was determined by the length of the night. Two UV light traps were operated from dusk to dawn during the survey periods. November's light trap collections were so limited that UV light trapping was discontinued from December to March. Hand held UV lamps were used in searching the dunes for fluorescing arthropods ie. scorpions, and visible light was used for other nocturnal species. Sand was sifted through two screens of 12X12mm and 1.5X1.5mm mesh to recover subsurface arthropods. Surface sand to a depth of 0.4-0.5m both from beneath vegetation and open sand (non-vegetated areas) was sifted. General collecting involved the use of aerial nets, plant inspection and walking the dunes at night to obtain nocturnal specimens. During a survey period, four or five different sites on the dune were visited and sampled and the sites were varied each survey.

Data are presented in the following manner: For each species of orthopteroid its status, location, numbers obtained, dates of occurrence, plant host association and method of collection are given. Status is given as endemic (E), sand obligate (SO), widespread desert (WD), common (C), accidental (A) and questionable (?). Endemic means that the species is known only from Sand Mountain or Blow Sand Mountains. Sand obligate means that the species is restricted to sand habitats and may be found in other dunes in Western North American. Widespread desert indicates the species is found throughout the Great Basin deserts and other western deserts. A common species will be found over much of North America. Accidental means the species collected at the dunes is ecologically not a sand or desert species. Questionable means that not enough information is known about the species to place it in one of the other categories. Only representative specimens of common species were collected and only curated specimens were tabulated. All species were identified by R.C. Bechtel and all tabulated specimens are either in the insect collection of the Biology Department, University of Nevada, Reno or the Nevada State

Department of Agriculture.

Results

The rhabdophorid, *Ammobaenetes lariversi*, was the only sand obligate species collected from both dunes. This distinctive species is known only from sand dune habitats in Nevada and has been recorded from only two other locations in Nevada (La Rivers 1948). It is a nocturnal species that lives in burrows in the harder sand and it is reported to feed on dune vegetation and dried bodies of other dune insects (La Rivers 1948). We have seen it attack and consume antlion (Neuroptera: Myrmeleontidae) adults attracted to UV lights. *A. lariversi* was collected in every month at Sand Mountain and all but February and March at Blow Sand Mountains. Most individuals were obtained in July, August, September and October with over 12% being taken in each of these months. Nymphs were found in all months at Sand Mountain and all but February and March at Blow Sand Mountains. La Rivers (1948) reported *A. lariversi* as a common prey item of scorpions and we also found many individuals captured by the scorpions *Paruroctonus auratus* (Gertsch and Sologlad) and *Hadrurus spadix* Stahnke.

Two species of acridids, *Hesperotettix viridis* (Thomas) and *Melanoplus cinereus* Scudder, were extremely abundant at Blow Sand Mountains in the summer of 1979 with thousands of individuals being present in June, July, August and September. Three of the dune plants, including two shrubs were completely defoliated. *H. viridis* denuded *Chrysothamnus viscidiflorus* and *M. cinereus* defoliated and chewed the bark from *Tetradymia tetrameres* bushes. The latter species then consumed the entire above ground parts of *Psoralea lanceolata* before feeding sporadically on certain other plants in the area. Both species were present in 1980 but not in the numbers seen in 1979.

Two species, *Anconia caeruleipennis* Bruner, an acridid, and *Conocephalus fasciatus vicinus* (Morse), a tettigoniid, were represented by only one specimen each. Perhaps the other rarest orthopteroid was the cockroach *Arenivaga erratica* (Rehn).

Orthoptera

Acrididae

Anconia caeruleipennis Bruner (WD)

BSM - 1 specimen, Aug., general collecting

Coniana snowi Caudell (WD)

SM - 27 specimens, July, Aug., general collecting

BSM - 7 specimens, July, Aug., general collecting

Conozoa wallula (Scudder) (WD)

SM - 7 specimens, Aug., general collecting

Cordillacris occipitalis cinerea (Bruner) (WD)

SM - 14 specimens, May, June, July, general collecting

BSM - 4 specimens, June, July, Aug., general collecting

Hesperotettix viridis (Thomas) (WD)

BSM-101 specimens June, July, Aug., Sept., general collecting, pitfall, on *Chrysothamnus viscidiflorus*, defoliated in 1979

Ligurotettix coquilletti cantator Rehn (WD)

SM - 7 specimens, Aug., Sept., general collecting

Melanoplus cinereus Scudder (WD)

SM - 12 specimens, June, July, Aug., Sept., general collecting

BSM - 110 specimens, June, July, Aug., Sept., general collecting, pitfall, on *Psoralea lanceolata*, *Tetradymia tetrameres*, both defoliated in 1979.

Paropomala pallida Bruner (WD)

BSM - 9 specimens, July, Aug., Sept., general collecting

Poecilotettix sanguineus Scudder (WD)

SM - 10 specimens, June, July, Aug., Sept., general collecting

BMS - 10 specimens, June, July, Aug., Sept., general collecting

Trimerotropis bilobata Rehn and Hebard (WD)

SM - 9 specimens, June, July, Aug., general collecting

BSM - 7 specimens, June, July, Aug., general collecting

Trimerotropis pallidipennis (Burmeister) (WD)

BSM - 7 specimens, July, general collecting

Trimerotropis pseudofasciata Scudder (WD)

SM - 5 specimens, June, July, Aug., general collecting

BSM - 1 specimen, July, general collecting

Trimerotropis strenua McNeill (WD)

SM - 2 specimens, July, Aug., general collecting

BSM - 10 specimens, July, Aug., general collecting

Tettigoniidae

Capnobotes fuliginous (Thomas) (WD)

BSM - 15 specimens, Aug., general collecting

Conocephalus fasciatus vicinus (Morse) (WD)

SM - 1 specimen, Aug., general collecting

Plagiostira gillettei Caudell (WD)

SM - 27 specimens, June, July, Aug., general collecting

BSM - 35 specimens, June, July, Aug., general collecting

Rhaphidophoridae

Ammobaenetes lariversi Strohecker (SO)

SM - 237 specimens, all months, sifting sand, pitfall, UV light

BSM - 87 specimens, all months except Feb., Mar., sifting sand, pitfall, UV light

Stenopelmatidae

Stenopelmatus fuscus Haldeman (WD)

SM - 14 specimens, June, July, Aug., Sept., pitfall, general collecting

BSM - 9 specimens, June, July, Aug., pitfall, general collecting

Gryllidae*Allonemobius* species (?)

SM - 3 specimens, July, Aug., general collecting

Oecanthus argentinus Saussure (WD)

SM - 5 specimens, Aug., general collecting

BMS - 7 specimens, Aug., general collecting

Mantodea**Mantidae***Litaneutria minor* (Scudder) (WD)

BSM - 2 specimens, Aug., general collecting

Stagmomantis californica Rehn and Hebard (C)

SM - 2 specimens, Aug., general collecting

Blattodea**Polyphagidae***Arenivaga erratica* (Rehn) (WD)

BSM - 5 specimens, May, June, July, Aug., pitfall, UV light

LITERATURE CITED

- La Rivers, Ira. 1948. A synopsis of Nevada Orthoptera. Amer. Midl. Nat. 39: 652-720.
- Morrison, R.B., and J.C. Frye. 1965. Correlation of the middle and late quaternary successions of the Lake Lahontan, Lake Bonneville, Rocky Mountains (Wasatch Range), southern Great Plains, and eastern midwest areas. Nevada Bureau Mines 9: 1-45.

DR. HARRY W. ALLEN

Dr. H.W. Allen, a long-term supporter of this Society, died on August 20, 1981, at the age of 89. He earned his B.S. at the University of Massachusetts, the M.S. at Mississippi State College, and his Ph.D. at Ohio State University. Dr. Allen was on the staff of the Mississippi Agricultural and Mechanical College from 1922-26, before joining the USDA in 1926, where he served in various capacities until his retirement in 1958. He was in charge of the Oriental Fruit Moth Unit at the USDA Moorestown laboratory from ca. 1928 to 1957.

After retirement, Dr. Allen continued to work actively in entomology, publishing important contributions such as "Parasites of the Oriental Fruit Moth in the Eastern United States" (USDA Tech. Bul. 1265) in 1962, and "The Genus *Tiphia* of the Indian Subcontinent" (USDA Tech. Bul. 1509) in 1975.

Dr. Allen served on the governing Council of the American Entomological Society for many years, and was President during 1958, when he presided over the celebration of the Society's one hundredth anniversary. In addition, he authored a history of the American Entomological Society in 1960 (Trans. Amer. Entomol. Soc. 85: 335-372).

Dr. Allen is survived by his wife Margaret W., his son Richard W., eight grandchildren, and two great-grandchildren. His daughter, Dorothy L., preceded him in death.

W.H. Day